

FLIP-CHIP PACKAGE WITH UNDERFILL DAM THAT CONTROLS STRESS AT CHIP EDGES

Abstract of Disclosure

A dam or barrier around the periphery of a die in a flip-chip package changes the shape of the underfill to reduce stress resulting from edge effects. The dam controls the wetting angle of the underfill material to provide a much smaller stress component perpendicular to the surface of the underlying substrate and shapes the underfill to eliminate sources of stress such as underfill fillet regions that are subject to significant shrinkage. The dammed underfill additionally avoids or reduces the extent of areas having thermal coefficients of expansion that differ from the optimal level because of low filler particle concentration.

Figures